General

Title

Acute myocardial infarction (AMI) mortality: percentage of in-hospital deaths per 1,000 discharges with AMI as a principal diagnosis for patients ages 18 years and older.

Source(s)

> AHRQ QI research version 5.0. Inpatient quality indicator 15 technical specifications: acute myocardial infarction (AMI) mortality rate. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2015 Mar. 2 p.

> National Quality Forum measure information: acute myocardial infarction (AMI) mortality rate. Washington (DC): National Quality Forum (NQF); 2014 Aug 18. 10 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Outcome

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of in-hospital deaths per 1,000 discharges with acute myocardial infarction (AMI) as a principal diagnosis for patients ages 18 years and older.

Rationale

Acute myocardial infarction (AMI) affects 1.5 million people each year and approximately one-third die in the acute phase of the heart attack (American Heart Association [AHA], 1996). Many clinical and observational studies have been conducted showing processes of care linked to survival improvements. These research findings have resulted in detailed practice guidelines covering all phases of AMI

management (Ryan et al., 1999).

Evidence for Rationale

American Heart Association (AHA). Heart attack and stroke facts: 1996 statistical supplement. Dallas (TX): American Heart Association (AHA); 1996. Various p.

National Quality Forum measure information: acute myocardial infarction (AMI) mortality rate. Washington (DC): National Quality Forum (NQF); 2014 Aug 18. 10 p.

Ryan TJ, Antman EM, Brooks NH, Califf RM, Hillis LD, Hiratzka LF, Rapaport E, Riegel B, Russell RO, Smith EE III, Weaver WD. 1999 update: ACC/AHA guidelines for the management of patients with acute myocardial infarction. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol. 1999 Sep;34(3):890-911. [849 references] PubMed

Primary Health Components

Acute myocardial infarction (AMI); death

Denominator Description

Discharges, for patients ages 18 years and older, with a principal International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis code for acute myocardial infarction (AMI) (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A systematic review of the clinical research literature (e.g., Cochrane Review)

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

Reliability Testing

Data/Sample. 1995 to 1997 Nationwide Inpatient Sample (NIS) and the complete State Inpatient Data (SID) for 5 Healthcare Cost and Utilization Project (HCUP) participating states (California, Florida, Illinois,

New York, and Pennsylvania).

Analytic Method. The technique used for reliability testing on this indicator is signal extraction. This technique is designed to "clean" or "smooth" the data of noise, and extract the actual signal associated with provider or area performance. We used two techniques for signal extraction to potentially improve the precision of the indicator. First, univariate methods estimated the "true" quality signal of an indicator based on information from the specific indicator and one year of data. Second, new multivariate signal extraction (MSX) methods estimated the signal based on information from a set of indicators and multiple years of data. In most cases, MSX methods extract additional signal.

Testing Results. The reliability testing was completed during the original development of the indicator. The indicator demonstrated high variation between hospitals and adequate signal to qualify as an Agency for Healthcare Research and Quality (AHRQ) quality indicator. The testing results follow:

Mean = 0.244, Standard Deviation = 0.161
Std. Dev. (High; 3.0%-7.9%)
Share (Moderate; Less than 1.0%)
Ratio (Moderate; 40.0%-70.0%)
R-square (Moderate)

Validity Testing
No additional validity testing conducted.

Refer to the original measure documentation for additional measure testing information.

Evidence for Extent of Measure Testing

National Quality Forum measure information: acute myocardial infarction (AMI) mortality rate. Washington (DC): National Quality Forum (NQF); 2014 Aug 18. 10 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Hospital Inpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Does not apply to this measure

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Making Care Safer
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Safety

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Institutionalization

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
Discharges, for patients ages 18 years and older, with a principal International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis code for acute myocardial infarction (AMI)

Note: Refer to the original measure documentation for ICD-9-CM codes.

Exclusions
Exclude cases:

> Transferring to another short-term hospital (DISP=2)
> Major Diagnostic Categories (MDC) 14 (pregnancy, childbirth, and puerperium)
> With missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator

Exclusions
Unspecified

Numerator Search Strategy

Institutionalization

Data Source

Administrative clinical data

Type of Health State

Death

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Description of Allowance for Patient or Population Factors

The risk adjustment model includes age, All Patient Refined-Diagnosis Related Group (APR-DRG) risk of mortality subclass, Major Diagnostic Categories (MDC) and transfer in status.

Refer to the original measure documentation for additional information.

Standard of Comparison

not defined yet

Identifying Information

Original Title

IQI 15: acute myocardial infarction (AMI) mortality rate.

Measure Collection Name

Agency for Healthcare Research and Quality (AHRQ) Quality Indicators

Measure Set Name

Inpatient Quality Indicators

Submitter

Agency for Healthcare Research and Quality - Federal Government Agency [U.S.]

Developer

Agency for Healthcare Research and Quality - Federal Government Agency [U.S.]

Funding Source(s)

Agency for Healthcare Research and Quality (AHRQ)

Composition of the Group that Developed the Measure

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicator (QI) measures are developed by a team of clinical and measurement experts in collaboration with AHRQ. The AHRQ QIs are continually updated as a result of new research evidence and validation efforts, user feedback, guidance from the National Quality Forum (NQF), and general advances in the science of quality measurement.

Financial Disclosures/Other Potential Conflicts of Interest

None

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2013 Jan 3

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Mar

Measure Maintenance

Measure is reviewed and updated on a yearly basis

Date of Next Anticipated Revision

Spring 2016 (version 6.0, including International Classification of Diseases, Tenth Revision, Clinical Modification [ICD-10-CM] and International Classification of Diseases, Tenth Revision, Procedure Coding System [ICD-10-PCS] compatible software)

Measure Status

This is the current release of the measure.

This measure updates a previous version: AHRQ QI. Inpatient quality indicators #15: technical specifications. Acute myocardial infarction (AMI) mortality rate [version 4.4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2012 Mar. 1 p.

Measure Availability

Source available from the Agency for Healthcare Research and Quality (AHRQ) Quality Indicators (QI) Web site [   ].

For more information, contact the AHRQ QI Support Team at E-mail: QIsupport@ahrq.hhs.gov; Phone: 301-427-1949.

Companion Documents

The following are available:

AHRQ quality indicators. Inpatient quality indicators (IQI) parameter estimates [version 5.0]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2015 Mar. 42 p. This document is available from the AHRQ Quality Indicators Web site [   ].

AHRQ quality indicators. Inpatient quality indicators benchmark data tables [version 5.0]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2015 Mar. 22 p. This document is available from the AHRQ Quality Indicators Web site [   ].

AHRQ quality indicators. Inpatient quality indicators composite measure workgroup. Final report. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Mar. various p. This document is available from the AHRQ Quality Indicators Web site [   ].

HCUPnet: a tool for identifying, tracking, and analyzing national hospital statistics. [Web site]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); [accessed 2015 Sep 10]. HCUPnet is available from the AHRQ Web site [   ].

NQMC Status

This NQMC summary was completed by ECRI on December 4, 2002. The information was verified by the Agency for Healthcare Research and Quality on December 26, 2002.

This NQMC summary was updated by ECRI on April 7, 2004, August 19, 2004, and March 4, 2005. The information was verified by the measure developer on April 22, 2005.

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This NQMC summary was retrofitted into the new template on July 14, 2011.

This NQMC summary was updated by ECRI Institute on March 25, 2013 and again on December 9, 2015. The information was verified by the measure developer on February 16, 2016.

Copyright Statement

No copyright restrictions apply.

Production

Source(s)

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